

pale brownish ocherous with a dorsal fuscous stripe. Thorax, tegula, and ground color of forewing ocherous-white; thorax and tegula strongly suffused with fuscous anteriorly; dorsal half and apex of forewing overlaid with buff; from base of costa, and from costa at one-third, blackish-fuscous bands extend to fold, the latter band, outwardly curved, joins narrowly a fuscous shade at outer third of costa; apex and tornus each with a small fuscous shade extended into the otherwise buff cilia; underside of forewing blackish fuscous. Hind wing and cilia fuscous; costal third of underside of hind wing blackish fuscous, remainder ocherous-white. Legs shining ocherous-white; tibiae and tarsi banded with blackish fuscous, abdomen grayish above, ocherous-white beneath.

*Male genitalia*.—As figured.

*Female genitalia*.—Genital plate, ostium, and signum as figured.

*Type*.—U.S.N.M. no. 60943.

*Type locality*.—Tucumán, Argentina.

*Remarks*.—Described from the type male and two male and four female paratypes, all from the type locality. The dates are "VIII, 1939," and the specimens were collected by J. A. Pastrana. Paratypes in U. S. National Museum and Mr. Pastrana's collection, Buenos Aires.

*A. parephoria* appears to be nearest to *A. ephoria* Meyrick but differs from that species by the long terminal segment of palpus and the three dark bands on second segment.

**MALACOLOGY.**—*Recent species of the cyrenoid pelecypod Glossus*.<sup>1</sup> DAVID NICOL, U. S. National Museum.

The study on *Glossus* is the fourth of a series on relict pelecypod genera. Lamy (1920, pp. 290–296) has done the most recent thorough work on the genus.

*Glossus* is represented by one species living in western European seas and the Mediterranean. The Indo-Pacific species allocated to *Meiocardia* have entirely different geographical distributions and certainly should be considered as a distinct genus on the basis of shell morphology. The exact relationship between *Glossus* and *Meiocardia* has never been shown, although Dall (1900, pp. 1065, 1066) claimed that the fossil and living species of the two groups are difficult to separate. Dall, Bartsch, and Rehder (1938, p. 121) consider *Glossus* and *Meiocardia* as distinct genera.

The torsion of the beaks has so greatly modified the hinge of the glossids that it is difficult to allocate the family to any higher taxonomic category, and it is not certain that any of the Mesozoic species of glossoid-form pelecypods can be placed in the genus *Glossus*. (See Stoliczka, 1871, p. 188.) Despite the great amount of torsion in *Glossus*, however, the genus bears much superficial resemblance to *Arctica*. This resemblance would be even more striking if the hinge of *Arctica* were twisted to the same degree that it is in *Glossus*.

<sup>1</sup> Published by permission of the Secretary of the Smithsonian Institution.

From the Paleocene through the Miocene, the genus *Glossus* has apparently been confined to temperate seas in the northern hemisphere except for the northern Pacific region. From the Pliocene to the Recent, the genus has been confined to western Europe and the Mediterranean Sea.

Family GLOSSIDAE Stoliczka, 1871

Genus *Glossus* Poli, 1795

*Cardium* Linné, 1758 (in part).

*Chama* Linné, 1764 (in part).

*Chama* Linné, 1767 (in part).

*Cardita* Bruguière, 1792 (in part).

*Glossoderma* Poli, 1795.

*Isocardia* Lamarek, 1799.

*Buccardium* Megerle von Mühlfeld, 1811.

*Bucardia* Schumacher, 1817.

*Tychocardia* Römer, 1869.

Genotype: (Monotypy) *Glossus rubicundus* Poli, 1795 = *Chama cor* Linné, 1767 = *Cardium humanum* Linné, 1758.

There appears to be no nomenclatorial reason why Poli's names can not be used despite the fact that he employed two generic names, one for the soft parts of the mollusk and the other for the shell. The shell name always ends in "derma," and *Cerastoderma* has been used consistently for a genus of cardliids. *Glossus* and *Glossoderma* are absolute synonyms, but *Glossus* is to be preferred on the basis of page priority. *Glossus* Poli, 1795, is clearly prior to *Isocardia* Lamarek, 1799, and on that basis must be employed for *Cardium humanum* Linné.

*Glossus humanus* (Linné), 1758

Figs. 2-5

1758. *Cardium humanum* Linné, Syst. Nat., ed. 10: 682.1764. *Chama cordiformis* Linné, Mus. Lud. Ul. Reg.: 516.1767. *Chama cor* Linné, Syst. Nat., ed. 12, 1 (pt. 2): 1137.1792. *Cardita cor* (Linné), Bruguière, Encyc. Meth., Nat. Hist. Vers, 1: 403, 404; 1797, *Cardita*, pt. 19, no. 18: pl. 232, figs. la-d.1795. *Glossus rubicundus* Poli, Test. utr. Siciliae 2: 114, 253, pl. 15, figs. 30, 34, 35, 36; pl. 23, figs. 1, 2.1795. *Glossoderma rubicundus* Poli, Test. utr. Siciliae 2: 253.1795. *Glossoderma cor* (Linné), Poli, Test. utr. Siciliae 2: 259.

FIG. 1.—Distribution of living specimens of *Glossus humanus* (Linné): ▼, Locality data based on U. S. National Museum specimens; ▽, locality data based on specimens in other museums and on published records.

1798. *Cardium cor auritum* Röding, Mus. Bolt.: 192, no. 415.
1799. *Isocardia cor* (Linné), Lamarek, Mem. Soc. Hist. Nat. Paris 1: 86.
1801. *Isocardia globosa* Lamarek, Syst. animaux sans vert., etc., 1: 118.
1811. *Buccardium commune* Megerle von Mühlfeld, Mag. Ges. Nat. Freunde Berlin 5 (1), art. 2: 52.
1815. *Glossus cor* (Linné), Oken, Lehr. Nat., Teil 3, Zool.: 235.
1817. *Buccardia communis* (Megerle von Mühlfeld), Schumacher, Essai nouv. syst., etc.: 144, pl. 13, figs. 2a, b.
1845. *Isocardia hibernica* Reeve, Conch. Icon. 2, *Isocardia*: pl. 1, sp. 4.
1853. *Cardita humana* (Linné), Mörch, Cat. Conch. Yoldi 2: 38.
1855. *Isocardia cor* var. *hibernica* Reeve, Hanley, Ipsa Linnaei Conchylia: 84.
1858. *Buccardia cor* (Linné), H. and A. Adams, Gen. Rec. Moll. 2: 461, pl. 112, figs. 5a, b.
1869. *Isocardia (Tychochardia) cor* (Linné), Römer, in Martini und Chemnitz, Conch.-Cab., ed. 2, 10 (2), Cardacea: 5-7, pl. 1, figs. 1-3.
1900. *Isocardia humana* (Linné), Dall, Tert. fauna Florida 3 (pt. 5): 1064.
1903. *Isocardia cor* var. *valentiana* Pallary, Ann. Mus. Hist. Nat. Marseille, Zool., 8, mém. 1: 15, pl. 1, fig. 13.
1937. *Glossus humanus* (Linné), van Regteren Altena, Bijdrage tot de kennis der fossiele, subfossiele en Recente Mollusken, etc.: 70, 71.

*Description*.—Shell porcellaneous, thin, exterior ornamented only by growth lines; small specimens often have two small folds separated by incised lines extending from the ligament obliquely downward toward the posteroventral margin; a poorly defined, broad depressed area in front of beaks, better defined in small specimens and often delimited by two incised lines; periostracum dark reddish brown to black on large specimens, lighter on small specimens, attaining a light greenish yellow on smallest specimens; periostracum nearly smooth in appearance on large specimens; on small ones fine, closely spaced, radiating lines composed of darker-colored ridges of periostracum; valves without gape, equivolume; interior ventral margin smooth; beaks spirally enrolled and strongly prosogyrate, umbones swollen; ligament external, weak, parivincular, split into two parts anteriorly and dragged under spirally enrolled beaks, opisthodontic; hinge teeth cyrenoid, hinge formula  $\frac{3a, 1, 3b, PI}{2a, 2b, 4b, PII}$ , all teeth laminar and nearly horizontal, 2a and 2b in left valve almost completely fused, 1 and 3b in right valve somewhat fused; pallial line integripalliate, ante-

rior adductor muscle scar deeper and better marked but smaller than posterior adductor muscle scar.

*Measurements in mm.*—Only specimens with both valves were measured:

U.S.N.M. no.	Length	Height	Convexity (both valves)
201293	104.2	98.3	83.2
201292	100.8	95.4	88.4
131658	93.0	89.2	77.7
304722	83.7	74.7	65.5
201294	81.7	79.6	59.0
201299	81.2	80.0	60.0
186122	79.3	74.7	69.5
201295	75.1	75.6	59.1
201302	70.3	64.1	59.7
304732	69.6	65.1	59.0
201298	67.8	66.1	61.3
201298a	60.4	59.6	53.2
201296	52.6	55.8	40.3
201300	45.9	48.8	36.2
201294a	45.6	48.2	35.7
131658a	45.6	45.6	38.6
201296a	44.1	48.0	34.4
201297	38.9	43.0	29.0
201297a	32.8	35.0	24.3
201337	26.8	27.7	20.5

One trend is quite apparent from the measurements: small shells are longer than they are high, whereas large shells are higher than they are long. The ratio of convexity to height was computed. All seven shells from the Mediterranean Sea had ratios ranging from 0.90 to 0.84. The ratios of 12 shells from the British Isles ranged from 0.80 to 0.72 except for one large shell from Dublin Bay which had a ratio of convexity to height of 0.88. Reeve (1845, vol. 2, p. 2, *Isocardia*) claimed that the specimens from Ireland were less globose than those from the Mediterranean Sea. On the basis of this difference and some other minor features, he proposed the new species name *hibernica* for the Irish specimens. To my knowledge no other conchologist has considered *hibernica* a distinct species, but Reeve's contention that the Mediterranean specimens are more globose is borne out by the few specimens I have measured.

*Number of specimens.*—There are 32 specimens of *Glossus humanus* in the collection of the United States National Museum.

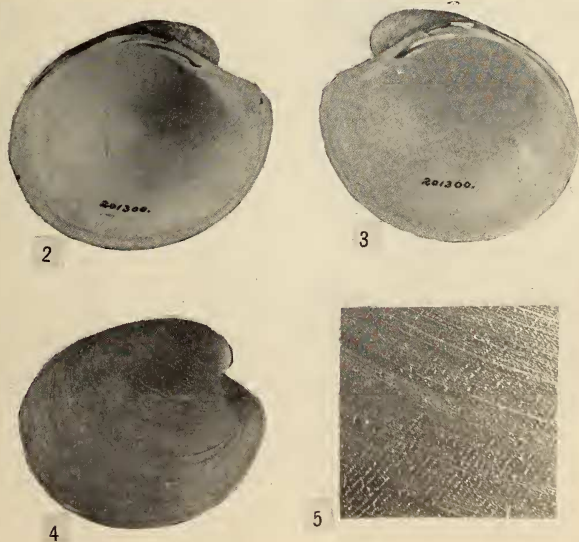
*Locality data.*—The following localities are represented by specimens in the National Museum: Zara, Yugoslavia; Tunis; Cette, France; Algiers; Cape de Gata, Spain; Cape Sagres, Portugal; Falmouth, England; Plymouth, England; Dublin Bay; Isle of Man; Oban, Scotland; Hebrides; Shetland Islands.

GEOGRAPHICAL DISTRIBUTION AND ECOLOGY  
OF *GLOSSUS HUMANUS* (LINNÉ)

This study is encumbered by two difficulties. *Glossus humanus* is not a common species, except for a few scattered localities, and observations on its habitat are meager. The more serious difficulty results from an error by J. Gwyn Jeffreys, who mistook species of *Kelliella* for the young of *Glossus*. Some of the Jeffreys' material collected on the *Porcupine* and *Valorous* expeditions is in the National Museum collection. Specimens identified as "*Isocardia cor*" by Jeffreys are not that species, a point upheld by Sars and much later by other conchologists.

The exact northern limit of distribution of *Glossus* is worthy of much additional investigation. Only one living specimen of *Glossus humanus* has been found off the southern coast of Iceland thus far (Madsen, 1949, p.

49), although the molluscan fauna of the island has been extensively collected and studied. The genus has not been reported from the Faroes. The report of *Glossus* from the Lofoten Islands off the coast of Norway was based on a misidentification by Jeffreys. The genus is rare from Trondhjem Fjord southward and eastward into the Kattegat. *Glossus* is fairly common in certain places along the coasts of the British Isles and is also found in the Shetlands. It has been reported all along the coasts of France, Portugal, and Spain. In the Mediterranean, *Glossus* is frequently found as far east as the Adriatic Sea. The fact that it has not been found east of there may be due to lack of careful collecting. It apparently is not present on the west coast of Africa, even near the entrance to the Mediterranean Sea. Jeffreys has reported *Glossus* from the Azores, but this report is



FIGS. 2-5.—*Glossus humanus* (Linné): 2, Interior of left valve,  $\times 1$ ; 3, interior of right valve,  $\times 1$ ; 4, exterior of right valve,  $\times 1$ ; 5, enlarged portion of exterior surface of shell showing fine radial ridges of periostracum,  $\times 6$ . (All figures are of a young specimen from Falmouth, England; U.S.N.M. no. 201300.)

thought to be based on a misidentification. Further collecting will no doubt more accurately delimit the distribution of the genus.

Additional ecological data are greatly needed on *Glossus humanus*. The species apparently is found on sand, sandy-mud, or mud bottoms. It has been thought by some to have a wide bathymetric range, but this idea is now believed to be incorrect. Jeffreys has reported *Glossus* from more than 2,000 meters of water, but the specimens found at that depth are probably all *Kellicella*. *Glossus* apparently is found in depths ranging from about 5 to 150 meters. The probable temperature of the bottom where the genus thrives ranges from 8° to 15°C.

**Acknowledgments.**—The following persons gave me data on geographical distribution of specimens of *Glossus*: William J. Clench, Museum of Comparative Zoology at Harvard College; Leo G. Hertlein, California

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#### REFERENCES

- DALL, W. H. *Contributions to the Tertiary fauna of Florida, etc.* Trans. Wagner Free Inst. Sci. **3** (pt. 5): 949-1218, pls. 36-47. 1900.  
 DALL, W. H., BARTSCH, P., and REHDER, H. A. *A manual of the Recent and fossil marine pelecypod mollusks of the Hawaiian Islands*. Bernice P. Bishop Mus. Bull. 153: 233 pp., 28 figs., 58 pls., 1938.  
 LAMY, E., *Révision des Cypricardiacea et des Isocardiacia vivants du Muséum d'Histoire Naturelle de Paris*. Journ. Conchyl. **64** (4): 259-307. 1920.  
 MADSEN, F. J. *The zoology of Iceland* **4** (pt. 63, Marine Bivalvia): 116 pp., 12 figs. 1949.  
 REEVE, L. A. *Conchologia iconica* **2**, Isocardia: 2 pp., 1 pl., 1845.  
 STOLICZKA, F. *Cretaceous fauna of southern India* **3**, The Pelecypoda, etc. Palaeontologica Indica (Geological Survey of India memoirs): 537 pp., 50 pls. 1871.

**MALACOLOGY.**—*More new urocoptid mollusks from Mexico.* PAUL BARTSCH, U. S. National Museum.

To the indefatigable efforts and the stimulating influence that Miss Marie Bourgeois, of Mixcoac, exerted upon her friends to help make known the molluscan fauna of Mexico, the U. S. National Museum is indebted for the following new species of urocoptid land snails transmitted to us for report.

***Coelostemma anconai*, n. sp.**

Figs. 1, 3

Shell cylindroconic, pale horn-colored when living, dead shells white. The nucleus consists of about two turns, which are somewhat inflated and strongly rounded and form a slightly bulbous apex. The nuclear turns are finely granulose. The first seven postnuclear whorls increase gradually in width, rendering this part of the shell elongate-conic. Beginning with the eighth turn the shell becomes cylindric in form, contracting slightly on the last three whorls. The postnuclear whorls are slightly rounded and separated by a moderately impressed suture. They are marked by decidedly retractively curved axial riblets, which are slightly less strongly developed on the cylindric portion of the shell than on the two ends. Of these riblets about 40 are present on the second postnuclear turn, 80 on the tenth, and 62 on the

penultimate whorl. On the last turn behind the peristome the riblets become fine, hairlike, and crowded. The spaces separating the riblets average about double the width of the ribs. The last turn is solute for about one-fifth of a turn, the solute portion bearing the rib sculpture of the rest of this portion of the shell. The aperture is subcircular and is somewhat sinuous on the parietal wall where the peristome is a little less expanded than on the rest of the aperture where it widens in a gentle curve. The columella is hollow, broad, about one-third the width of the shell, and shows fine axial markings; it gradually narrows in the last two turns.

The holotype, U.S.N.M. no. 595018, has 19 whorls and measures: Length 26 mm; diameter of the cylindric portion 6 mm. U.S.N.M. no. 595019 comprises the paratype, of which we have figured the columella and some fragments.

We are naming the species for Prof. I. Ancona, who collected the specimens at Ixcatiopan, Guerrero, Mexico.

Of the known species of *Coelostemma* this species resembles most nearly *C. igualaensis* Bartsch, from Iguala, Guerrero, Mexico, from which it is easily distinguished by its smaller size, more cylindric outline, narrower shell, and stronger ribbing.